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	First Named Inventor	Johan P.M.G. Linnartz	
	Art Unit	2613	
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In re Application of

LINNARTZ ET AL.

Group Art Unit: 2613

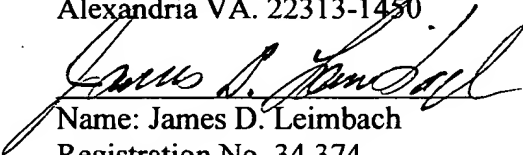
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Serial No. 09/385,278

Filed: August 30, 1999

  
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**AMENDED APPEAL BRIEF. 37 C.F.R. §1.192**

This is an Amended Appeal Brief filed in support of an appeal from the final rejection of the appealed claims contained in the Final Office Action dated December 29, 2003 and responsive to the Notice of Non-compliance under 37 C.F.R. §1.192(c) mailed August 2, 2004.

Serial No. 09/385,278

## **Introduction**

This Application is before the Honorable Board of Patent Appeals and Interferences, from a final decision of the Examiner as indicated in the Advisory Action dated February 25, 2004.

## **Real party in interest**

The real party of interest is the Assignee who is U. S. Philips Corporation, a corporation existing under the laws of the State of Delaware (hereinafter Appellant).

## **Related appeals and interferences**

There are no related appeals or interferences to the present application that are known to appellant, the appellant's legal representative, or assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

## **Status of the Claims**

Claims 1-20 as originally filed are drawn to a method and device for encoding, transmitting and receiving video signal text processing system by which data can be inserted into a video bit stream and removed after transmission.

## **Status of the Amendments After Final**

An amendment and response was filed subsequent to the final rejection to overcome the Examiner's rejection of claims 1-20 under 35 U.S.C. §102(e) and 35 U.S.C. §103(a). The Examiner in an Advisory Action dated February 25, 2004 (paper no. 16) indicated that the amendment would be entered but that the rejection based on the prior art stands. Claim 20 was rejected under 35 U.S.C. §112, second paragraph, which the appellants believe was

overcome by the amendment to claim 20 filed February 9, 2004. The Examiner did not explicitly state in the Advisory Action dated February 25, 2004 that the amendment to claim 20 filed February 9, 2004 in response to the Final Office Action dated December 29, 2003 overcame the rejection to claim 20 under 35 U.S.C. §112, second paragraph, however, it is the appellants' impression that the amendment to claim 20 has overcome the rejection to claim 20 under 35 U.S.C. §112 and that this rejection is now moot.

### **Summary Description of the Invention**

The invention relates to the encoding, transmitting and receiving of video signals wherein an auxiliary signal defines replacement information that is transmitted with the video signal to provide simple and effective operations with logos and watermarks (see page 1, lines 15-24 of the specification to the invention). The invention is especially effective in MPEG types of compressions where the video signal is encoded into a channel bitstream and an image area within the video signal is represented by a sub-series of bits, the image area can be replaced by video information that is similarly encoded and represented by substantially the same number of bits. This allows a receiver or transcoder to replace the sub-series representing the image by the replacement video having the same number of bits as the sub-series (see page 2, lines 14-24).

The invention provides a series of fields within a video signal, that are data structures, wherein the video fields define a logo or watermark, and an auxiliary signal that has the original information before the logo or watermark was added. The auxiliary signal preferably contained within a user data field of the main video signal and defines the size and location of the information related to the logo or watermark (see page 4, lines 6-20). With the proper equipment, retransmission of the video signal can be accomplished with the logo or watermark included or removed.

The problems to be solved by the invention, as well the advantages of the invention are described in detail in the description. Briefly stated, television stations can simultaneously transmit different versions of a television program, or the like, with one signal. (see specification page 1, lines 25-28).

## **Issues on Appeal**

The issues presented are whether claims 1-20 are patentable under the provisions of 35 U.S.C. §112 second paragraph, 35 U.S.C. §102(e) and 35 U.S.C. §103(a).

## **Grouping of the Claims**

The claims do not stand and fall together.

## **Arguments**

### **I. The rejection under 35 U.S.C. §112, second paragraph**

The Final Office Action contained a rejection to claim 20 that is believed to have been overcome by the amendment to claim 20 filed February 9, 2004 in response to the Final Office Action.

Appealed claim 20 defines subject matter for the video signal comprising an identifier that identifies existence of the replacement information within the video. The appellants believe that claim 20 particularly points out that the video signal contains an identifier and distinctly claims the identifier relates to replacement information.

The Examiner did not explicitly state in the Advisory Action dated February 25, 2004 that the amendment to claim 20 filed February 9, 2004 overcame the rejection to claim 20 under 35 U.S.C. §112, second paragraph, however, the appellants believe that the amendment to claim 20 has overcome the rejection to claim 20 under 35 U.S.C. §112 and that this rejection is moot.

### **II. The rejection under 35 U.S.C. §102(e)**

Claims 10-13, 15, 16 and 18-20 are rejected under the provisions of 35 U.S.C. §102 (e) as being anticipated by U.S. Patent No. 6,404,781 issued in the name of Kawamae et al. (*Kawamae et al.*). The Examiner's position is that *Kawamae et al.* disclose the subject matter for the data transmission method defined by the appealed claims in Figures 2-5 and 8, and subject

matter for the method of decoding a digital video signal as defined by the appealed claims in Figure 5.

**A. The basis of support for the rejection under 35 U.S.C. §102(b)**

The Examiner's position is that *Kawamae et al.* disclose subject matter for the data transmission method defined by the appealed claims in Figures 2-5 and 8, and subject matter for the method of decoding a digital video signal as defined by the appealed claims in Figure 5. The Examiner's position states that Figure 3; column 1, lines 25-34; column 6, lines 49-56; column 7, lines 37-57; column 9, lines 17-22; and column 10, lines 38-49 of *Kawamae et al.* disclose the recited elements of the appealed claims of receiving an auxiliary bitstream containing replacement information for the image area of the image with the auxiliary bitstream accommodated within the user data field of the main bitstream and the means for replacing the sub-series of bits of the main bitstream representing the image areas by the replacement video information to obtain the modified bitstream.

**B. The reference**

*Kawamae et al.* (U.S. Patent No. 6,404,781) teach a data transmission and receiving method and apparatus in which additional information can be embedded and a reproducing apparatus for detecting embedded information (see column 1, lines 25-34 of *Kawamae et al.*) *Kawamae et al.* teach the embedding of additional information by repeatedly adding the same information into the original data (see column 5, lines 56-65). Encoding within *Kawamae et al.* is performed by repeatedly embedding the same information a plurality of times. The encoded data is transmitted and decoding of the data is performed using majority rule to decipher that data that has been embedded a plurality of times. The additional information that is embedded by the process of *Kawamae et al.* is obtained at the receiving end by implementation of majority rule to each piece of data that is repeatedly transmitted (see column 6, lines 30-44). *Kawamae et al.*, state that additional information is embedded or concealed within the video data (column 6, lines 49-56). Note that *Kawamae et al.* discuss a data transmission method for embedding or concealing additional information and for reproducing or detecting the additional

information. There is no discussion or disclosure within *Kawamae et al.* for transmitting or receiving an auxiliary bit stream containing replaced information in addition to the main bit stream. Moreover, there is no teaching within *Kawamae et al.* of transmitting an auxiliary bit stream representing replacement information for an image area within an image represented by the main bitstream.

*Kawamae et al.* teach embedding additional information by forming pixel blocks and encoding the additional information within the pixel blocks using a residuum of division related to the pixel resolution in the description related to Figure 3 of *Kawamae et al.* at column 7, lines 37-65. A piece of data is described as being formed in to pixel blocks having square shapes, for example an 8x8 pixel block of 64 pixels. Each pixel in the 64-pixel block has 8-bits resulting in the 64-pixel block being capable of being treated as a single entity with a resolution of 256 discrete steps. The embedding of additional information as taught by *Kawamae et al.* embeds additional information by placing a single bit into one of the pixels in the 64-pixel block. If the additional bit is a “1”, then the value of the entire 64-pixel block is adjusted to be a multiple of 256. If the additional bit is a “0”, then the value of the entire 64-pixel block is adjust to be a multiple of 128. Each case employs a residuum of division related to the pixel resolution.

The description related to Fig. 4 of *Kawamae et al.* at column 8, line 36-45 discusses repeatedly adding the same information into a piece of the picture data. By embedding the same additional information into a plurality of pixel blocks, the process of majority rule can be implemented on each piece of repeated additional information to discern the correct value for that piece of additional information. *Kawamae et al.* teach embedding additional information by repetitively adding 1 bit to predetermined pixel blocks for adding error correction codes (column 9, lines 17-22). The number of repetitions that any single bit has been added to several pixel blocks is deciphered with an embedded data detector on the playback device to allow for majority rule to decide the value of the 1 bit that has been repetitively added to the several pixel blocks (column 9, lines 30-56).

Different embodiments discussed by *Kawamae et al.* transfer in advance the number of repetitions for which a bit is added to a plurality of pixel blocks (column 10, lines 12-37). Within an MPEG format, the repetition number for the additional data can be placed in the header or the Group of Picture unit (column 10, lines 38-49 of). *Kawamae et al.* teaches repeating the same additional information a predetermined number of times in order to reduce

error rates, and the decoding of the additional information by employing a majority rule algorithm. The appellants respectfully point out that none of the embodiments disclosed by *Kawamae et al.* teach a signal having a main bitstream with an image area being encoded into a sub-series of bits and an auxiliary bitstream having replacement information for the encoded image area using substantially the same number of bits as the sub-series.

### **C. The differences between the invention and the reference**

*Kawamae et al.* (U.S. Patent No. 6,404,781) do not teach a video signal having a main bitstream with an image area being encoded into a sub-series of bits and an auxiliary bitstream having replacement information for the encoded image area using substantially the same number of bits as the sub-series. "To anticipate a claim, a prior art reference must disclose every limitation of the claimed invention, either explicitly or inherently." *In re Schreiber*, 128 F.3d 1473, 1477, 44 USPQ2d 1429, 1431 (Fed. Cir. 1997). *Kawamae et al.*, as previously discussed, teach repetitively embedding of identical information within a predetermined number of pixel blocks and decoding the embedded information using majority rule in order to reduce error rates (*Kawamae et al.* column 8, lines 30-46 and column 9, lines 34-59). The appealed claims define subject matter for encoding, transmission, transcoding, reception and decoding of a video signal having main bitstream with a modified image area and an auxiliary bitstream representing replacement video information for the modified image area. The appealed claims further define subject matter for replacing the image area with the replacement information contained in the auxiliary bit stream. *Kawamae et al.* teach the detecting of the predetermined number of times the additional information is placed within several pixel blocks and employs majority rule to determine the value of the additional data that has been embedded in order to reduce errors. The appellants respectfully assert that *Kawamae et al.* do not disclose the subject matter defined by the appealed claims for receiving an auxiliary bitstream containing replacement information for the image area of the image wherein the replacement information has substantially the same number of bits as the image area within the image that is to be replaced.

Appealed claim 10 defines subject matter for a method of decoding a digital video signal including receiving a main bitstream representing an image of a video signal and receiving



an auxiliary bitstream representing replacement video information for an image area of the image. *Kawamae et al.* provide in Figure 5 an illustration of a signal processing apparatus for coding/decoding a transmission. Note that recording disc 11 within Figure 5 of *Kawamae et al.* is essentially equivalent to the transmission that takes place within *Kawamae et al.* and that the playback of disc 11 is essentially equivalent to the transmission that takes place within *Kawamae et al.* Figure 5 of *Kawamae et al.* discloses a video data input 4 and an input terminal 1 for information bits to be repetitively embedded into the video data. There is no receiving of the video data and information bits in the recording system of Figure 5 of *Kawamae et al.* The appellants respectfully point out that receiving should be viewed as analogous to the playback that occurs by the reproducing system of Figure 5 of *Kawamae et al.* During playback, as taught by *Kawamae et al.* in Figure 5, there is no teaching or suggestion of an auxiliary bitstream representing replacement video information for the image area that was modified during encoding. *Kawamae et al.* teach that the main bit stream will be decoded using majority rule and not by using an auxiliary bitstream (see column 9, lines 30-56). Note that decoding as taught by *Kawamae et al.* involves the retrieval of the additional information contained within placed within the main video signal, while decoding as defined by appealed claim 10 results after replacing the image area of the main video signal with replacement video information contained in the auxiliary signal, wherein the replacement video information has substantially the same number of bits as the image area that is being replaced.

Appealed claim 10 additionally defines subject matter for replacing a sub-series of bits representing the image area in the main bitstream with replacement video information received from the auxiliary bitstream to obtain a modified bitstream, wherein the modified bitstream defines the sub-series by a substantially same number of bits as the image area in the main bitstream. The appellants respectfully point out that the replacing step recited by appealed claim 10 occurs after receiving a main bitstream and an auxiliary bitstream. *Kawamae et al.* do not perform any step of replacing video information received from a separate auxiliary bitstream. Furthermore, appealed claim 10 defines the replacing of an image area. The appellants respectfully point out that that the encoding as taught by *Kawamae et al.* places a single bit into an entire pixel block and that the pixel block contains multiple pixels. The previously discussed example of *Kawamae et al.* at column 7, lines 37-57 states that square pixel blocks of 64 pixels, with each pixel having 8-bits, for a total of 256 bits, and only a single bit is embedded within

those 256 bits. *Kawamae et al.* do not decode by replacing a pixel block with information gained from a bitstream independent of the main video bit stream. *Kawamae et al.* decode using majority rule (as discussed at column 9, lines 30-56) to extract the information that was embedded within the received video signal. Note that appealed claim 10 defines subject matter for decoding that replaces a series of bits with another series of bits received from an alternative bit stream. *Kawamae et al.* do not mention, or in any way suggest, replacing a series of bits with another series of bits in decoding the received video signal. *Kawamae et al.* discuss retrieving the embedded additional information by majority rule.

Appealed claim 11 defines subject matter for a method of transcoding a digital video signal including receiving a main bitstream representing an image of a video signal and receiving an auxiliary bitstream representing replacement video information for an image area of the image, replacing a sub-series of bits in the said main bitstream representing the image area by the replacement video information to obtain a modified bitstream, wherein the modified bitstream defines the sub-series by a substantially same number of bits as the image area in the main bitstream and transmitting the modified bitstream. *Kawamae et al.* do not transmit a modified bitstream having a sub-series of an image area replaced by video information from a different signal using the same number of bits. As previously discussed, *Kawamae et al.* embed a single bit into a pixel block and reconfigure the total value of the pixel block as either a mod 256 or mod 128 depending on the value of the bit that is embedded in the pixel block (see column 7, lines 37-57). The appellants respectfully assert that embedding a single bit into a pixel block having on the order of 256 pixels is not replacing that entire pixel block using the same number of pixels. The appellants further contend that altering the total value of the pixel block is not equivalent to replacing all the bits in the pixel block using replacement information that is provided in an auxiliary bitstream to the main video bit stream.

Appealed claim 12 defines subject matter for a method of transcoding a digital video signal, wherein the auxiliary bitstream is accommodated in user data fields of the main bitstream. *Kawamae et al.* do not disclose accommodating an auxiliary bitstream within a user data field of the main bitstream. The term user data field has been defined in the specification to the present invention in Figure 2, and described on page 4, lines 9-20 of the specification to the invention in manner consistent with the term data fields as applied to data structures accepted within the art. The Final Office Action on page 3 makes a conclusory statement that *Kawamae*

*et al.* disclose that the auxiliary bitstream is accommodated within user data field of the main bitstream. The appellants are not aware of the definition that is applied to the term user data field by the Final Office Action because none is given. The Final Office Action does not identify where the term user data field, or any data structure that is being treated as equivalent to the term user data field, can be found within *Kawamae et al.* Appealed claim 12 defines that the auxiliary bitstream is accommodated within user data fields in the main bitstream. As previously discussed, *Kawamae et al.* teach modifying of pixel blocks to accommodate single bits. There is no auxiliary bitstream accommodated within a user data field of the main bitstream taught, or suggested, in any way, manner or form by *Kawamae et al.*

Appealed claim 13 defines subject matter of claim 11 and the additional subject matter of deriving the position and/or size of the image area from data included in the auxiliary bitstream. The Final Office Action at page 4 has taken the position that Figure 3 and column 7, lines 37-57 of *Kawamae et al.* disclose deriving the position and/or size of the image area from data included in the auxiliary bitstream. As previously discussed, column 7, lines 37-57 of *Kawamae et al.* disclose replacing a piece of video data with pixel blocks and repeatedly embedding single bits in several of the pixel block; which is not equivalent to the subject matter defined by appealed claim 12 for the deriving the position and/or size of the image area from data included in the auxiliary bitstream within the teachings of *Kawamae et al.*

Appealed claim 15 defines subject matter for an arrangement for decoding of a digital video signal including means for receiving a main bitstream representing an image of a video signal and means for receiving an auxiliary bitstream representing replacement video information for an image area of said image. Figure 5 of *Kawamae et al.* illustrates a signal processing apparatus of coding/decoding according to the invention taught therein. Decoding takes place during playback for the apparatus taught in Figure 5 of *Kawamae et al.* Note that the *Kawamae et al.* do not disclose or suggest decoding with a means for receiving an auxiliary bitstream representing replacement video information for the image area of the image. *Kawamae et al.* teach that the main bit stream will be decoded using majority rule (see column 9, lines 30-56) and not by replacement data contained within an auxiliary bitstream. Decoding as defined by appealed claim 15 results after replacing the image area of the main video signal with replacement video information contained in the auxiliary signal having the same number of bits as the image area that is being replaced. Appealed claim 15 defines subject matter for obtaining

a modified bitstream by replacing a sub-series of bits representing the image area in the main bitstream with replacement video information received from the auxiliary bitstream. The modified bitstream defines the sub-series by a substantially same number of bits as the image area in the main bitstream. The means for replacing recited by appealed claim 15 occurs after receiving a main bitstream and an auxiliary bitstream. *Kawamae et al.* do not teach means for replacing video information a sub-series of bits in the main bit stream from a separate auxiliary bitstream or replacing of an entire image area. *Kawamae et al.* place a single bit into an entire pixel block that contains multiple pixels. *Kawamae et al.* do not decode by replacing a pixel block with information gained from a bitstream independent of the main video bit stream. *Kawamae et al.* decode using majority rule (as discussed at column 9, lines 30-56) to extract the information that was embedded within the received video signal.

Appealed claim 16 defines subject matter for an arrangement of transcoding a digital video signal including means for receiving a main bitstream representing an image of a video signal, means for receiving an auxiliary bitstream representing replacement video information for an image area of the image, replacing a sub-series of bits in the said main bitstream representing the image area by the replacement video information to obtain a modified bitstream, wherein the modified bitstream defines the sub-series by a substantially same number of bits as the image area in the main bitstream and transmitting the modified bitstream. *Kawamae et al.* do not transmit a modified bitstream having a sub-series of an image area replaced by video information from a different signal using the same number of bits. As previously discussed, *Kawamae et al.* embed a single bit into a pixel block and reconfigures the total value of the pixel block as either a mod 256 or mod 128 depending on the value of the bit that is embedded in the pixel block (see column 7, lines 37-57). The appellants respectfully assert that embedding a single bit into a pixel block having on the order of 256 pixels is not equivalent to replacing that entire pixel block using the same number of pixels. The appellants further contend that altering the total value of the pixel block is not equivalent to replacing all the bits in the pixel block using replacement information that is provided in an auxiliary bitstream to the main video bit stream.

Appealed claim 18 defines subject matter for a video signal having a main bitstream representing an image of the video signal with an image area of the video signal being encoded into a sub-series of bits and an auxiliary bitstream representing replacement video

information for the image area, the replacement video information being represented by a substantially same number of bits as said sub-series. *Kawamae et al.*, as previously discussed, repetitively embed identical information within a predetermined number of pixel blocks and decode the embedded information using majority rule in order to reduce error rates (*Kawamae et al.* column 8, lines 30-46 and column 9, lines 34-59). *Kawamae et al.* do not teach a video signal having a main bitstream with an image area being encoded into a sub-series of bits and an auxiliary bitstream having replacement information for encoding the image area using substantially the same number of bits as the sub-series.

Appealed claim 18 to the present invention defines a video signal having an image area encoded into a sub-series of bits and replacement video information for said image area represented by another sub-series of bits having the same number of bits. *Kawamae et al.* teach the embedding of additional information into pixel blocks of video data (see column 9, beginning at line 17). *Kawamae et al.* do not disclose, or suggest, a sub-series of bits defining an image area and replacement data for the image area also defined by a sub-series of the same number of bits as recited by rejected Claim 18 to the present invention. *Kawamae et al.* do not teach representing an image area to be replaced within an image as a sub-series of bits within a video signal and video information for said image area represented by another sub-series of bits having the same number of bits.

Appealed claim 19 defines subject matter for a video signal that has an indicia identifying block size of the replacement video information. The Final Office Action on page 4 states that this is found in column 10, lines 38-49 of *Kawamae et al.* The appellants respectfully point out that this cited section of *Kawamae et al.* refers to the statement that the number of repetitions “P” of the same data can be included in the MPEG header. The appellants would like to, respectfully, point out that indicating the number of repetitions “P” that the same datum is repetitively placed in several pixel blocks is not equivalent to the identifying block size of the replacement video information as defined by appealed claim 19. *Kawamae et al.* do not provide any indication in the MPEG header of the size of all the bits that are to be embedded into the pixel blocks. *Kawamae et al.* identify the repetition number for which each single bit is repetitively placed into several pixels. Note the fundamental difference between the appealed claims and the teachings of *Kawamae et al.* Appealed claim 19 defines subject matter for replacing a predetermined sub-series of bits with replacement video data that is transferred with

the main video data and provides indicia for the block size of the replacement data. *Kawamae et al.* repetitively places single bits into several pixel blocks, alters the value of the pixel blocks to reflect the value of the bit, and transfers the repetition number in the MPEG header. Simply put, *Kawamae et al.* do not disclose, or teach in any way, a video signal that has an indicia identifying block size of the replacement video information.

Appealed claim 20 defines subject matter for a video signal having an identifier that identifies existence of the replacement information within the video. The Final Office Action states the MPEG header taught on Column 10, lines 38-49 of *Kawamae et al.*, also anticipates this subject matter. The appellants respectfully point out that the number of repetitions “P” that the same bit is reproduced in several pixels as taught by *Kawamae et al.* is not the same as identifying the existence of replacement information as defined by appealed claim 20.

### **III. The rejections under 35 U.S.C. S 103(a)**

Claims 14 and 17 stand rejected under the provisions of 35 U.S.C. §103 (a) as being obvious over *Kawamae et al.* (U.S. Patent No. 6,404,781) in view of *Epstein* (U.S. Patent No. 6,490,355).

Claims 1-6 and 9 stand rejected by the Final Office Action under the provisions of 35 U.S.C. §103 (a) as being obvious over *Kawamae et al.* in view of *Vynne et al.* (U.S. Patent No. 5,960,081).

Claims 7 and 8 stand rejected under the provisions of 35 U.S.C. §103 (a) as being obvious over *Kawamae et al.* in view of *Vynne et al.* and further in view of *Epstein*.

#### **A. The rejections under 35 U.S.C. S 103(a)**

Appealed claims 14 and 17 stand rejected under the provisions of 35 U.S.C. §103 (a) as being obvious over *Kawamae et al.* in view of *Epstein*. The examiner’s position is that *Kawamae et al.* teach all the elements of appealed claims 14 and 17 except for copy control information for inhibiting playback and/or inhibit of outputting of the reproduced signal. The Final Office Action states that *Epstein* teaches a method apparatus for use of a time dependent

watermark for copy protection as shown in Figures 1 and 3 and further teaches conventional means for determining if the image area identifies copy protection status information.

Appealed claims 1-6 and 9 stand rejected under the provisions of 35 U.S.C. §103 (a) as being obvious over *Kawamae et al.* in view of *Vynne et al.* The examiner's position is that *Kawamae et al.* teach all the elements of appealed claims 1-6 and 9 except for the arrangement for transmitting an auxiliary signal defining a sub-image to replace the modified image area with replacement video information that is encoded by substantially the same number of bits, wherein the replacement video information is the image area of the original signal, and wherein the replacement video information is encoded and represented by the same number of bits as the modified signal. The examiner further states that *Kawamae et al.* do not disclose the arrangement wherein the auxiliary signal is accommodated in the user data fields of the bitstream and includes data defining the position and size of the replacement video information as recited by the rejected claims to the present invention. The examiner's position is that it would be obvious for a person skilled in the art to embed a digital signature into a video sequence as taught by Figures 2.1-2.3 of *Vynne et al.*, and employ the conventional replacement of modified image areas as mentioned by *Vynne et al.*, on column 1, lines 11-42, within the method and apparatus of *Kawamae et al.* to create the subject matter defined by the claimed invention. Specifically, the examiner states that it obvious for a person of ordinary skill within the art to incorporate the video information taught by *Vynne et al.* with the image coding and decoding system as disclosed by Figure 5 of *Kawamae et al.*, thus providing substantially the same auxiliary signal defined by appealed claims 1-6 and 9 of a sub-image to replace the modified video signal. Further, the examiner asserts that the combination renders obvious the elements of the replacement video being represented by the same number of bits and that the auxiliary signal is accommodated in the user data fields of the bit-stream including data defining the position and/or size of the replacement video, indicating that these elements are shown by *Kawamae et al.* in Figure 3 and at column 7, lines 37-57 and column 10, lines 38-49.

Appealed claims 7 and 8 stand rejected under the provisions of 35 U.S.C. §103(a) as being obvious over *Kawamae et al.* and *Vynne et al.* and further in view of *Epstein*. The Final Office Action states that the combination of *Kawamae et al.* with *Vynne et al.* does not disclose the modified signal, which identifies copy protection status but that *Epstein* discloses protection status.

## **B. The references**

The primary reference, *Kawamae et al.*, has been previously discussed in relation to the rejection under the provisions of 35 U.S.C. §102(e). The appellants, for the sake of brevity, refer to the previous discussion of primary reference, *Kawamae et al.*, that was made in this brief and contained in the discussion related to the rejection under the provisions of 35 U.S.C. §102(e). Briefly stated, *Kawamae et al.* teach an embodiment for embedding additional information by forming pixel blocks and encoding the additional information within the pixel blocks using a residuum of division related to the pixel resolution as detailed in the description related to Figure 3 of *Kawamae et al.* at column 7, lines 37-65. A piece of video data is formed into pixel blocks. The embedding of additional information as taught by *Kawamae et al.* embeds additional information by placing a single bit into one of the pixels in the pixel block. If the additional bit is a “1”, then the value of the entire 64-pixel block is adjusted to be a multiple of 256. If the additional bit is a “0”, then the value of the entire 64-pixel block is adjust to be a multiple of 128. Each case employs a residuum of division related to the pixel resolution.

*Epstein* relates to a method and apparatus for using watermarks for the purpose of copy protection. *Epstein* discusses digital transmissions and copy protection status within digital transmissions (see column 2, lines 34-58). Additionally, *Epstein* details various statuses for copy protection that are available that watermarks can be used to indicate (see column 4, lines 16-59). *Epstein* describes the formation of tickets produced by hash functions on a physical mark to produce a ticket (see column 5, lines 61- column 6, lines 21). Note that *Epstein* uses a ticket to indicate copy protection status and not a watermark; in fact *Epstein* treats the watermark as being content that cannot be removed without seriously damaging the content (see column 5, lines 32-60). *Epstein* does not describe or in anyway suggest, placing copy protection status information within a sub-series of bits in the main video bitstream for an image video signal.

*Vynne et al.* discuss the potential modifying digital images, and more specifically, copying digital video (see column 1, lines 11-42). To address the potential for copying digital video *Vynne et al.* provides a process to embed digital signatures within a video sequence. The embedding of a digital signature in a video sequence as taught by *Vynne et al.* insures that the digital signature can be retrieved and not be corrupted, such as during compression. *Vynne et al.*



teach the encryption and decryption of digital signatures that employ a secret key (see column 11, lines 32-67). Note that Figures 2.1-2.3 of *Vynne et al.* illustrate a high level block diagram for the incorporation of a watermark into a motion picture with a secret key. The appellants respectfully point out that *Vynne et al.* do not teach or suggest the transmission or and retrieval of an auxiliary signal containing the image area originally replaced by a logo, watermark or digital signature. Additionally, *Vynne et al.* do not teach or suggest placing an auxiliary signal in user data fields of the main video signal. Moreover, *Vynne et al.* do not provide any suggestion or motivation for transmitting an auxiliary signal defining a sub-image to replace by the modified image area with the replacement video information encoded by substantially the same number of bits. *Vynne et al.* pertains to placing and concealing digital signatures among various frames in a video sequence (see column 2, lines 37-64).

### **C. The differences between the invention and the references**

The examiner states that *Kawamae et al.* teach all the elements of independent claims 11 and 16 from which appealed claims 14 and 17 depend except for the elements related to copyright status and control. The Final Office Action states that these elements for copyright information control and for inhibiting playback and/or outputting of the reproduced signal in response to the copyright status are taught *Epstein*. The Final Office Action states that *Epstein* teaches disclose a method apparatus for use of a time dependent watermark for copy protection as shown in Figures 1 and 3 and further teaches conventional means for determining if the image area identifies copy protection status information. The examiner's position is that it would be obvious for a person of ordinary skill within the art to apply the teachings of *Epstein* to the method and apparatus of *Kawamae et al.* to create the subject matter defined by appealed claims 14 and 17.

Appealed claim 14 defines subject matter of a method for determining if the image area represented by the sub-series identifies copy protection status information. The appellants respectfully point out that the Final Office Action identifies discussions within *Epstein* related to copy protection status, and means for enabling recording the modified its training, however, the final Office Action does not identify any section of *Epstein* that has any indication that a sub serious within the main video bitstream is used to provide copyright status

information. To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). The appellants respectfully point out that the combination of *Kawamae et al.* with *Epstein* does not address all the subject matter defined by appealed claim 14, specifically, the replacement data is defined as a sub-series of bits and this sub-series also identifies whether the replacement data identifies a copy protection status. The appellants contend that the subject matter defined by appealed claim 14 relates to the modified bitstream defining the sub-series of bits by a substantially same number of bits as the image area in the main bitstream is not taught or suggested by *Kawamae et al.* or *Epstein* either alone or in combination.

As previously discussed, *Epstein* describes the formation of tickets produced by hash functions on a physical mark to produce a ticket (see column 5, lines 61- column 6, lines 21). *Epstein* uses a ticket to indicate copy protection status and not a watermark; in fact *Epstein* treats the watermark as being content that cannot be removed without seriously damaging the content (see column 5, lines 32-60). The sub-series of bits defined by appealed claim 14 is content. Furthermore, the sub-series of bits defined by appealed claim 14 is content identifying copy protection status information. *Epstein* discusses placing copy protection status information within a ticket that is explicitly not content. Additionally, it is specifically in addition within *Epstein* that the watermark information not be removed. The sub-series of bits defined by appealed claim 14 is specifically intended to be used as replacement information to alter the content, which content defines copy protection status, and is clearly contrary to the teachings of *Epstein*. The appellants respectfully assert that the combination of *Kawamae et al. with Epstein*, either alone or in combination, does not describe or in anyway suggest, placing copy protection status information within a sub-series of bits in the main video bitstream for an image video signal.

Appealed claim 17 defines subject matter of an arrangement for transcoding including means for determining if the image area represented by the sub-series identifies copy protection status information. The appellants respectfully point out that the Final Office Action identifies discussions within *Epstein* related to copy protection status, and means for enabling recording the modified its training, however, the final Office Action does not identify any section of *Epstein* that has any indication that a sub serious within the main video bitstream is used to provide copyright status information. The appellants respectfully point out that the combination

of *Kawamae et al.* with *Epstein* does not address all the subject matter defined by appealed claim 17, specifically, the replacement data is defined as a sub-series of bits and this sub-series also identifies whether the replacement data identifies a copy protection status. The appellants contend that subject matter defined by appealed claim 17 relates to the modified bitstream defining the sub-series of bits by a substantially same number of bits as the image area in the main bitstream is not taught or suggested by *Kawamae et al.* or *Epstein* either alone or in combination.

As previously discussed, *Epstein* describes the formation of tickets produced by hash functions on a physical mark to produce a ticket (see column 5, lines 61-column 6, lines 21). *Epstein* uses a ticket to indicate copy protection status and not a watermark; in fact *Epstein* treats the watermark as being content that cannot be removed without seriously damaging the content (see column 5, lines 32-60). The sub-series of bits defined by appealed claim 17 is content. Furthermore, the sub-series of bits defined by appealed claim 17 is content identifying copy protection status information. *Epstein* discusses placing copy protection status information within a ticket that is explicitly not content. Additionally, it is specifically in addition within *Epstein* that the watermark information not be removed. The sub-series of bits defined by appealed claim 17 is specifically intended to be used as replacement information to alter the content, which content defines copy protection status, and is clearly contrary to the teachings of *Epstein*. The appellants respectfully assert that the combination of *Kawamae et al.* with *Epstein*, either alone or in combination, does not describe or in anyway suggest, placing copy protection status information within a sub-series of bits in the main video bitstream for an image video signal.

Appealed claims 1-6 and 9 stand rejected under the provisions of 35 U.S.C. §103 (a) as being obvious over *Kawamae et al.* in view of *Vynne et al.* The examiner's position is that *Kawamae et al.* teaches the subject matter defined by appealed claims 1-6 and 9 except for the elements of arrangement for transmitting an auxiliary signal defining a sub-image to replace the modified image area with the replacement video information encoded by substantially the same number of bits, wherein the replacement video information is the image area of the original signal, and wherein the replacement video information is encoded and represented by the same number of bits as the modified signal. The examiner further states that *Kawamae et al.* do not disclose the arrangement wherein the auxiliary signal is accommodated in the user data fields of

the bitstream and includes data defining the position and size of the replacement video information as recited by the rejected claims to the present invention.

The appellants respectfully point out that the position of the examiner regarding the subject matter not provided by *Kawamae et al.* is contrary to the position that was taken by the examiner in relation to the rejection under the provisions of 35 U.S.C. §102 previously discussed. In the rejection under the provisions of 35 U.S.C. §102 previously discussed, the examiner took the position that all these elements that the examiner is currently stating are not found within *Kawamae et al.*, were found. The appellants agree with the current position of the examiner expressed in this rejection, that *Kawamae et al.* do not teach the subject matter defined by the appealed claims of transmitting the auxiliary signal defining a sub-image to replace the modify image areas of the modified signal, wherein the sub-image is encoded by the same number of bits as the image area. The appellants further agree with the current position of the examiner expressed in this rejection that *Kawamae et al.* do not teach the subject matter of the appealed claims for the replacement video information being the image area of the original signal with replacement video information encoded and represented by the same number of bits as the modified image area. The appellants further agree with the current position of the examiner that *Kawamae et al.* do not teach the subject matter of the auxiliary signal being accommodated in user data fields of the bitstream and further identifying the position and/or size of the replacement video information. *Kawamae et al.* do not teach any of the foregoing elements that are defined by the appealed claims.

Regarding claim 1 which defines subject matter for a method of transmitting a video signal including transmitting the auxiliary signal defining a sub-image to replace the modify image areas of the modified signal, *Vynne et al.* do not provide and teach or suggestion for transmitting the auxiliary signal defining a sub-image to replace the modify image areas of the modified signal. The examiner states that this information is found in Figure 2.1-2.3, and column 1, lines 11-42, the appellants respectfully point out that this information is not found or suggested in these cited areas or in any part of *Vynne et al.*

Regarding claim 9 which defines subject matter for an arrangement for transmitting a video signal including transmitting the auxiliary signal defining a sub-image to replace the modify image areas of the modified signal, *Vynne et al.* do not provide and teach or suggestion for transmitting the auxiliary signal defining a sub-image to replace the modify

image areas of the modified signal. The examiner states that this information is found in Figure 2.1-2.3, and column 1, lines 11-42, the appellants respectfully point out that this information is not found or suggested in these cited areas or in any part of *Vynne et al.*

Regarding appealed claim 2, *Vynne et al.* or *Kawamae et al.*, either alone or in combination do not teach the subject matter of the appealed claim 2 for the replacement video information being the image area of the original signal with replacement video information encoded and represented by the same number of bits as the modified image area.

Regarding appealed claim 3, *Vynne et al.* or *Kawamae et al.*, either alone or in combination do not teach the subject matter of the appealed claim 3 for identifying the position and/or size of the replacement video information.

The subject matter of the appealed claim 4 for sub-image being encoded by the same number of bits as the image area is not disclosed or suggested by either *Vynne et al.* or *Kawamae et al.*, either alone or in combination.

Regarding appealed claim 5, *Vynne et al.* or *Kawamae et al.*, either alone or in combination do not make any mention of an auxiliary signal much less an auxiliary signal being accommodated in user data fields of the bitstream.

Regarding appealed claim 6, there is no mention in any way manner or form by either *Vynne et al.* or *Kawamae et al.*, alone or in combination of a modified video signal being predictively encoded or modifying pictures that are not referred to by other pictures. In fact the Final Office Action is silent to the subject matter defined by appealed claim 6 and does not even make a cursory mention of the subject matter defined by appealed claim 6 in asserting that appealed claim 6 is obvious in view of the combination of *Vynne et al.* with *Kawamae et al.*

The appellants respectfully submit that the above-discussed elements are not found in the combination made in the Final Office Action of *Vynne et al.* with *Kawamae et al.* To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). The appellants assert the Final Office Action has not satisfied this requirement. The Final Office Action only makes a cursory mention of the subject matter defined by the appealed claims and asserts that it is found within certain cited portions of these references. The cited portions of *Vynne et al.* and *Kawamae et al.* have all been previously discussed and they do not contain the subject matter that the Final Office Action contends. The subject matter defined by appealed

claim 6 is not mentioned in the Final Office Action; however, claim 6 is included in this rejection. The appellants, respectfully, submit that no reasonable reading of the cited references, either alone or in combination, results in a single video signal defining an image area and replacement data for that image area that is the original image data.

Appealed claims 7 and 8 stand rejected under the provisions of 35 U.S.C. §103(a) as being obvious over *Kawamae et al.* in view of *Vynne et al.* and further in view of *Epstein*, which teaches a method and apparatus for using watermarks for the purpose of copy protection. As previously discussed, *Epstein* describes the formation of tickets produced by hash functions on a physical mark to produce a ticket (see column 5, lines 61- column 6, lines 21). *Epstein* uses a ticket to indicate copy protection status and not a watermark; in fact *Epstein* treats the watermark as being content that cannot be removed without seriously damaging the content (see column 5, lines 32-60).

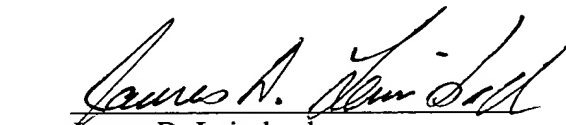
Regarding appealed claim 7, *Epstein* does not describe or in anyway suggest, placing copy protection status information within a sub-series of bits in the main video bitstream for an image video signal. *Epstein* in fact teaches away from the subject matter defined by appealed claim 7 because *Epstein* teaches that the watermark cannot be modified without destroying the content.

Appealed claim 8 defines subject matter for the modified image not being reproduced by convention analog video recorders. The modified image defined by appealed claim 8 includes the copy protection status of appealed claim 7 and further defines subject matter that the modified image is not reproduced by convention analog video recorders. The combination of *Kawamae et al.* in view of *Vynne et al.* and *Epstein*, does not disclose, suggest or motivated a person skilled in the art to provide a modified image contained the copy protection status that is not reproduced by convention analog video recorders. The Appellants respectfully contend that the rejection to appealed claim 8 within the Final Office Action has not properly addressed the recited elements of appealed claim 8, and a prima facie case of obviousness has not been made.

### III. Conclusion

In summary, the Examiner's rejections of the claims are believed to be in error for the reasons explained above. The rejections of each of claims 1-20 should be reversed.

Respectfully submitted,

  
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## **APPENDIX 1. Claims on Appeal**

1. A method of transmitting video signals, comprising the steps of:
  - receiving an image of an original video signal;
  - modifying an image area of said image to create a modified video signal;
  - transmitting the modified video signal;transmitting an auxiliary signal defining replacement video information for said image area of the modified video signal as a sub-series of bits, wherein said sub-series is encoded by a substantially same number of bits as said image area.
2. A method as claimed in claim 1, wherein said replacement video information is the image area of the original signal.
3. A method as claimed in claim 1, wherein the auxiliary signal further includes data defining the position and/or size of the replacement video information.
4. A method as claimed in claim 1, in which the modified video signal is encoded into a bitstream and the image area is represented by the sub-series of bits, characterized in that the replacement video information is encoded and represented by a substantially same number of bits as the modified image area.
5. A method as claimed in claim 4, wherein the auxiliary signal is accommodated in user data fields of the bitstream.
- 6.: A method as claimed in claim 4, wherein the modified video signal is predictively encoded and the step of modifying is applied to pictures which are not referred to by other pictures.
7. A method as claimed in claim 4, wherein the modification of the image area identifies copy protection status information.



8. A method as claimed in claim 7, wherein the image is modified in such a manner that the modified video signal has a pattern that is not reproduced upon playback by conventional analog video recorders.

9. An arrangement for transmitting a video signal, comprising:

- means for receiving an image of an original video signal;
- means for modifying an image area of said image to create a modified video signal;
- means for transmitting the modified video signal;

wherein the arrangement includes means for transmitting an auxiliary signal defining a sub-image to replace the modified image area of the modified video signal, and wherein said sub-image is encoded by a substantially same number of bits as said image area.

10. A method of decoding a digital video signal, comprising the steps of:

- receiving a main bitstream representing an image of a video signal;
- receiving an auxiliary bitstream representing replacement video information for an image area of said image;
- replacing a sub-series of bits of said main bitstream representing said image area by said replacement video information to obtain a modified bitstream, wherein said modified bitstream defines said sub-series by a substantially same number of bits as said image area in said main bitstream; and
- decoding said modified bitstream.

11. A method of transcoding a digital video signal, comprising the steps of:

- receiving a main bitstream representing an image of a video signal;
- receiving an auxiliary bitstream representing replacement video information for an image area of said image;
- replacing a sub-series of bits of said main bitstream representing said image area by said replacement video information to obtain a modified bitstream, wherein said modified bitstream defines said sub-series by a substantially same number of bits as said image area in said main bitstream; and
- transmitting said modified bitstream.

12. A method as claimed in claim 11, wherein the auxiliary bitstream is accommodated in user data fields of the main bitstream.

13. A method as claimed in claim 11, further comprising deriving the position and/or size of said image area from data included in the auxiliary bitstream.

14. A method as claimed in claim 11, further comprising the steps of:

- determining whether the image area represented by said sub-series of bits of said main bitstream identifies copy protection status information; and
- enabling recording of the modified bitstream if said determination is positive.

15. An arrangement for decoding a digital video signal, comprising:

- means for receiving a main bitstream representing an image of a video signal;
- means for receiving an auxiliary bitstream representing replacement video information for an image area of said image;
- means for replacing a sub-series of bits of said main bitstream representing said image area by said replacement video information to obtain a modified bitstream, wherein said sub-series is represented by a substantially same number of bits as said image area; and
- means for decoding said modified bitstream.

16. An arrangement for transcoding a digital video signal, comprising:

- means for receiving a main bitstream representing an image of a video signal;
- means for receiving an auxiliary bitstream representing replacement video information for an image area of said image;
- means for replacing a sub-series of bits of said main bitstream representing said image area by said replacement video information to obtain a modified bitstream, wherein said sub-series is represented by a substantially same number of bits as said image area; and
- means for transmitting said modified bitstream.

17. An arrangement as claimed in claim 16, further comprising:

- means for determining whether the image area represented by said sub-series of bits of said main bitstream identifies copy protection status information; and
- means for enabling recording of the modified bitstream if said determination is positive.

18. A video signal, comprising:

- a main bitstream representing an image of the video signal, an image area of said video signal being encoded into a sub-series of bits; and
- an auxiliary bitstream representing replacement video information for said image area, the replacement video information being represented by a substantially same number of bits as said sub-series.

19. The video signal of claim 18 further comprising an indicia identifying block size of the replacement video information.

20. The video signal of claim 18 further comprising an identifier that identifies existence of the replacement information within the video